BIOLOGICAL OXYGEN THERAPIES

Restoring Our Cellular Oxidation

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It is now evident that oxidation problems underlie most of our modern diseases. As a result of diet-related and/or antibiotic induced Candida overgrowth we develop inflammation and permeability of the intestinal wall. This condition is called “leaky gut syndrome” and it allows fungal-type microbes and their toxins to penetrate the intestinal wall and invade the bloodstream. These fungal toxins block key oxidative enzymes, thereby weakening the immune system as well as our oxidative energy production from food.

The liver may also be strongly affected, causing a deficiency of oxidative enzymes which may result in a weakened immune system, a less efficient fat metabolism, and causes problems producing haemoglobin, thyroid hormones, steroid hormones, connective tissue, healthy hair or skin colour and countless other defects. This is because all of these rely on efficient oxidation.

In time and with anti-fungal therapy this fungal invasion may be reversed, but the oxidative enzymes remain blocked by fungal toxins. With each subsequent course of antibiotics more oxidative enzymes become blocked and health deteriorates further. The resulting lack of vital energy then causes a wide range of diseases to emerge. This can only be reversed by unblocking affected enzymes with suitable oxygen therapies as outlined below.

One of the main problems associated with modern diseases is energy deficiency. This is not only felt in weak muscles and as lack of endurance, but can also appear in the brain as a mental problem or disease. Lack of energy in the brain is one of the first symptoms and may manifest as anxiety, compulsive habits, learning difficulties, schizophrenia, depression, memory loss, Alzheimer’s disease or Parkinson’s disease, while Chronic Fatigue Syndrome manifests mainly in the body, as does cancer and many other diseases. If, where, and how this energy deficiency manifests in the body as a disease depends on inherited factors, mentality, emotions, nutrition, living conditions, toxicity and other causes.

If our food is efficiently oxidised to carbon dioxide and water, then twenty times more energy is produced than when it is converted, without oxygen, into lactic acid. Therefore, affected individuals tend to eat several times more food than those who oxidise their food. The food surplus will be stored as overweight and give a boost to Candida. If overweight individuals eat much less to lose weight they increasingly get lack of energy.

Energy production without oxygen is called "anaerobic", and that is how yeasts and cancer cells obtain their energy. This not only causes energy deficiency in all areas of the body, but also overacidity from the overproduction of lactic acid, which then creates its own set of problems. Furthermore, lack of efficient oxidation is also the main cause of underweight, and a weakened immune system. Weak oxidation will affect different organs and muscles to varying degrees; depending on the percentage of blocked mitochondria in affected cells.

You may ask why we do not get all the oxygen we need from the oxygen in the air just by breathing. That is how it used to be in the “good old days” before the introduction of synthetic antibiotics. The reason is that oxygen in the air is present as a rather stable molecule, two oxygen atoms joined together. This has the advantage of causing much less oxidative damage to the body than by introducing highly reactive oxygen ions, but the drawback is that the body needs to produce many different enzymes to split oxygen molecules into ions for specific chemical oxygen reactions. Not only does this require a lot of energy, but it also makes the body vulnerable to attack by Candida and other microbes which block key oxidative enzymes with their toxins. When this happens, it no longer matters how much oxygen we get from the air because we just cannot use it for the key aspects of our metabolism, and instead, we become oxygen deficient, even if medical tests show 100% oxygen saturation of the blood.

In addition, with continued invasion by hyphal Candida, the invasive form of Candida induced by antibiotics, and with microbial problems in the blood caused by “leaky gut syndrome”, there is also an increasing destruction of red blood cells and impaired haemoglobin synthesis, greatly reducing the supply of molecular oxygen from the lungs. All of these health issues can be greatly improved with biological oxygen therapies.

Oxygen Therapies

Holistic therapists have generally recognised the importance of oxidation in cancer therapy and for supporting the immune system by using a variety of oxygen therapies such as hyperbaric oxygen, ozone, sodium chlorite/MMS/chlorine dioxide and hydrogen peroxide, but all of these have some drawbacks. Mostly the problem is that these chemical oxidants are very strong, but they are not selective. They oxidise anything that comes their way, thereby damaging sensitive and essential body structures, and depleting our antioxidant defence system.

The most damaging oxidants are called ‘free radicals’ and are commonly produced by ionising radiation and chemotherapy as used in cancer treatment. The immune system can also produce free radicals, but these are then used selectively to kill pathogens and do not freely float around in massive amounts and damage delicate cell structures, such as occurs with radiation therapy.

The most powerful oxidant used in holistic therapy is ozone, followed by the less damaging hydrogen peroxide, and then comes sodium chlorite or MMS with its active component chlorine dioxide. Chlorine dioxide is easiest to stomach and generally the preferred option.

However, the best effect with the least damage to sensitive tissue results from using biological oxidants that are already naturally used by the body for this purpose. These are mainly vitamin C, MSM, and to some degree also iodine. Vitamin C exists in an oxidised form, called Dehydroascorbic Acid or DHA, and in reduced form as Ascorbic Acid (AA). They easily change into each other as parts of a Redox System. Other suitable biological redox systems are the oxidised MSM with the reduced DMSO, and the oxidised iodine with the reduced iodide as in Lugol’s solution.

You may be surprised to read that Carbon Dioxide (CO2) has been successfully used as a natural oxygen therapy, especially with asthma. CO2 as produced by cells is required as a signal for red blood cells to release oxygen into tissues. CO2 therapy is the only method reported to heal "diabetic foot", a condition where diabetics develop gangrenous foot or leg ulcers. Conventionally this is being treated with foot or leg amputation. A Japanese team has shown that diabetic foot can be healed with CO2 micro-bubbles. I expect that treating diabetic foot with topical DHA will give similar results. Preferably combine both methods. Also other skin problems, including infections and injuries, as well as external tumours, may be treated in this way.

Vitamin C

I see the vitamin C redox system as a highly promising biological oxygen therapy for treating our modern diseases. A main feature in this context is how vitamin C crosses cell membranes. To get in or out of cells, it does not cross cell walls on its own. Instead, to get absorbed from food, or to get into other cells and organs, it has specific transporters. AA is actively carried across membranes by sodium transporters. These are mainly present in the intestinal tract for vitamin C absorption but have only a limited capacity. This is why in experiments small amounts of AA in food or supplements are absorbed nearly 100% while when taking 1 gram only 50% is absorbed.

However, there is an additional transport system with a very high capacity. This is based on glucose transporters which carry DHA across membranes. Most of the vitamin C inside the body gets into cells and especially into the brain as DHA. There it is immediately reduced back to AA, mainly by glutathione. To get out of the cell it is again oxidised, and after crossing the membrane, it is once more reduced. Therefore, by using more vitamin C as DHA we can absorb vastly greater amounts without getting diarrhoea or other problems. In addition we get more oxygen into the intestinal wall. If a DHA solution is rubbed on the skin it is 12 times better absorbed than AA (http://www.vitaminc.kiwi/).

After absorption from the intestines, vitamin C eventually enters the bloodstream as AA. Here most of it leaves the plasma and accumulates in the red and white blood cells. When the blood flows through an area with a raised carbon dioxide concentration as from muscle activity, it releases some of its oxygen in addition to some of the AA. When encountering a cell membrane, the oxygen, with the help of traces of copper, oxidises the AA to DHA so that it gets into the cell. Once Inside, DHA immediately loses an oxygen ion and changes back to AA (https://en.wikipedia.org/wiki/Dehydroascorbic_acid).

The key point here is that chemically stable molecular oxygen from the air is converted by vitamin C into reactive ionic oxygen. This can then be released inside cells to kill any microbes or alternatively provide oxygen for energy production. Reactive oxygen is also what the cells of the immune system need and use as ammunition, mainly in the form of hydrogen peroxide.

With this, vitamin C released inside an infected cell can destroy not only the invasive microbes but also their toxins which block the oxidative energy metabolism in the mitochondria (the cell's power stations). The beauty of using vitamin C to destroy intracellular microbes is that it instantly transforms back into the reduced form to protect sensitive cell structures from oxidative damage.

It had been expected that high intakes of vitamin C would reduce the amount of available protective glutathione, but research has shown instead that amounts of glutathione in red and white blood cells are greatly increased (1) (2).

Liposomal vitamin C has been developed for better absorption and to get reduced vitamin C through membranes directly into cells. But in this way no active oxygen is transported into cells to unblock infected mitochondria, and therefore it will be useless as an oxygen therapy. However, it is still good to protect cells from damage during times of intensive oxidation such as with Radiotherapy, Chemotherapy, Ozone Therapy and prolonged MMS/ClO2 Therapy.

The MSM - DMSO Redox Pair

MSM (Methylsulfonylmethane) is the oxidised form of the MSM - DMSO combination. MSM has two oxygens attached to a sulphur atom. When losing one oxygen ion it becomes the antioxidant DMSO (dimethyl sulfoxide). MSM occurs naturally in our blood at a concentration of about 0.2 parts per million. A great plus for this system is that DMSO and MSM are highly soluble in both oil and water. They are also small molecules so that they easily and rapidly diffuse through the cell membranes as well as through the cell cytoplasm. They are not restricted by cell membranes like vitamin C and most other molecules. This makes the MSM – DMSO pair a very effective oxygen transport system.

Inside cells MSM releases active oxygen just like DHA. While MSM is important to form connective tissue, it is also a valuable source of biological sulphur, and its two methyl groups may be used for methylation reactions or just become oxidised in the citric acid cycle. A potentially unwanted side-effect may be a strong body smell of garlic or sulphur if DMSO is used orally or if too much MSM has been ingested so that only part of it is absorbed while the rest is then reduced to smelly dimethyl sulphide in the colon. Normally that does not happen with 3 to 10 g of MSM spread out over the day but if it does then just reduce the intake. See **More Energy & Less Disease**.

MSM is interesting as it shows us what makes cells malignant. Melanoma cells of a highly aggressive strain were soaked in a 2% MSM solution. After one day of exposure the cells had become completely normal and remained so indefinitely. Also daughter cells derived from them remained normal. However, DMSO did not normalize these melanoma cells. The only difference between MSM and DMSO is an additional oxygen ion in MSM. I interpret this to mean that MSM has been enzymatically reduced to DMSO, and the liberated active oxygen repaired the oxidative energy metabolism of the melanoma cells (3). This method could be used by keeping tumours close to the skin soaked in a pack of MSM solution, possibly with the addition of oxidised vitamin C. It also shows that oxygen therapy is the key to eliminate all cancers.

The Citric Acid Cycle

As a general statement we may say that a healthy body converts its food to lemon juice so that it can be oxidised to carbon dioxide and water. In this way we gain the maximum amount of energy from what we eat, twenty times more than when it is only converted to lactic acid. The main hurdle is right at the beginning of this process where the lack of oxidation prevents a part of our nutrients from being converted to citric acid. At this stage this affects mainly glucose and fatty acids. This blockage causes our low energy. Normally, specific enzymes inside cells split the molecular oxygen in a range of oxidative reactions called the citric acid cycle.

Figure 1 shows a diagram of the **Citric Acid Cycle**. You will see that the central biochemical molecule, which channels the broken-down nutrients into the cycle, is pyruvic acid. One molecule of glucose is split into 2 molecules of pyruvic acid, but pyruvic acid can also be converted back to glucose. The main problem that depletes our energy and leads to our modern diseases is a blockage in the conversion of pyruvic acid to acetyl coenzyme A. This is due to the needed oxidation being more or less blocked by microbes and their toxins.

The main enzyme required for this important oxidation step in the mitochondria is cytochrome c oxidase. This is where the main microbial blockage is, and it is also related to the oxidised glutathione inside the cell after it has reduced DHA back to AA. When being reduced again by the enzyme glutathione reductase, oxidised glutathione can now channel its oxidation power into clearing blockages in the citric acid cycle, such as enabling the production of acetyl-coenzyme A, and providing oxygen for the cycle to turn over. Glutathione reductase therefore is an important biochemical which needs riboflavin (vitamin B2) to function; it is also being used as an indicator of oxidative stress.

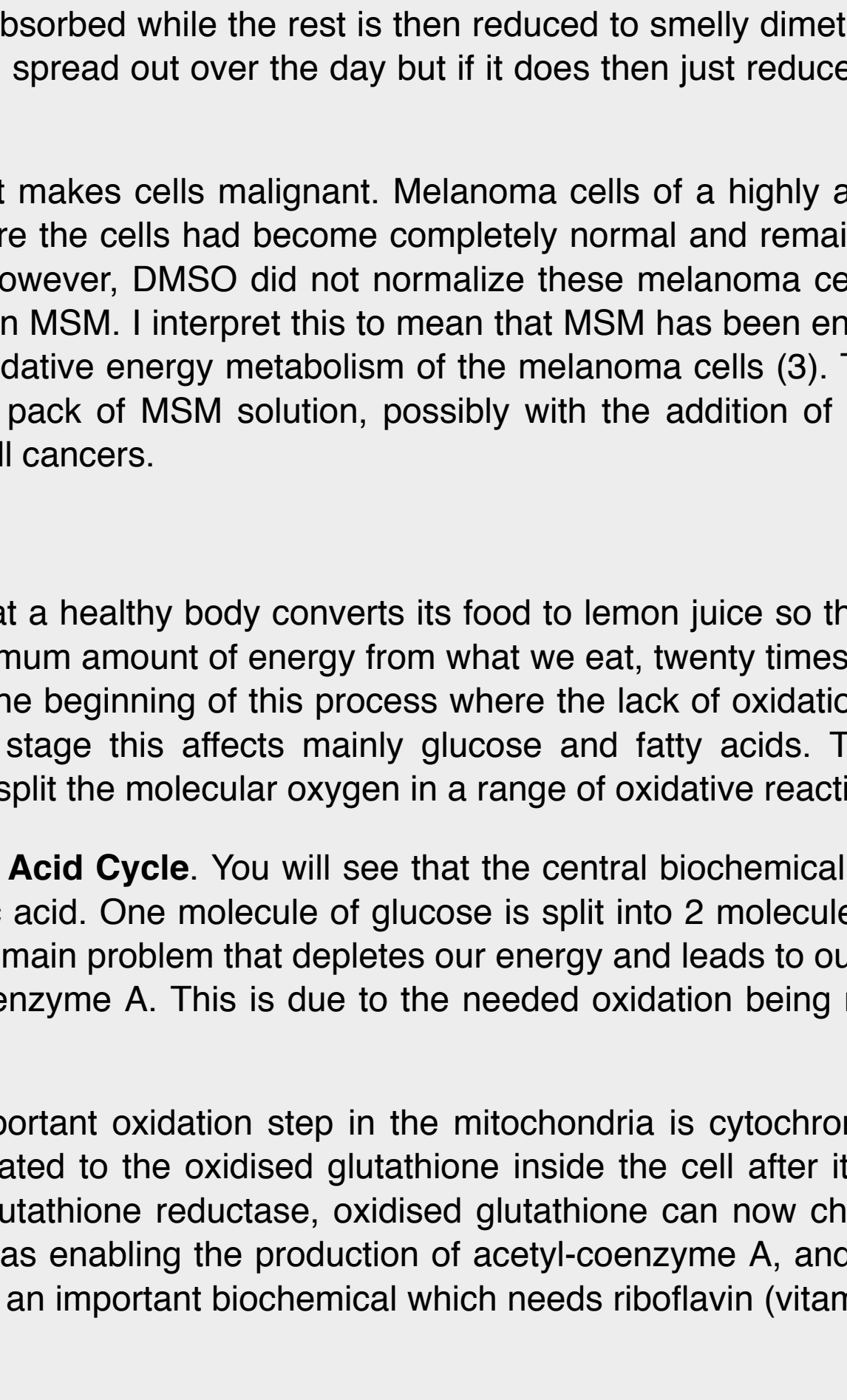

FIG. 1: CITRIC ACID CYCLE

However, with continuing deficiency of oxygen, cytochrome c oxidase and others oxidising enzymes increasingly diminish. The oxidative energy production in affected cells continues to decline as energy is now mostly derived from converting pyruvic acid into lactic acid. When this occurs the cell switches over to a yeast or fungal type of energy production which is also the hallmark of cancer cells.

Normally our food is broken down into 2-carbon acetyl groups. Acetyl-coenzyme A then delivers an acetyl group into the cycle by combining it with 4-carbon oxaloacetic acid to form 6-carbon citric acid. If pyruvate oxidation is blocked, oxaloacetic acid accumulates while available citric acid decreases. This shows us how we can keep the citric acid cycle turning over: by drinking lemon juice! However, it is important to use real lemon juice, not commercial citric acid powder instead of lemon juice.

This diagram also lets us understand why it is important in such a delicate system to clear the oxidative blockage with biological chemicals that nature developed for this purpose rather than by just flooding cells with highly reactive oxygen radicals. As mentioned before, after the release of their load of reactive oxygen these biological chemicals instantly have an antioxidant in place to protect sensitive cell structures.

Figure 1 also shows that vitamin B3 (niacin or niacinamide) is required for most oxidative pathways. It is the most important vitamin for energy production, not only in the body but especially for proper brain functions. For better efficiency it is usually combined with high-dose vitamin C. There is no general rule on how much to take. 50 mg may be the minimum for mild oxidation problems, while several grams/day have been used to treat schizophrenia. Be aware of the (beneficial) skin flushing effect of niacin compared to niacinamide, which does not cause this reaction. Take niacin only on a full stomach, the more inflammation there is in the body and the higher the urine acidity, the stronger will be the flushing.

Practical Steps

The outlined considerations show us how we can improve our low and deteriorating production of oxidising enzymes and energy. The key players are vitamins C and B3, MSM and lemon juice in water (see below for details). Sip or drink slowly up to five times during the day. The amounts may vary widely with lifestyle, disease and present conditions. However, always start low, increase gradually, and reduce or stop during any reactions, depending on their severity.

The mentioned amounts are general indications only. Experiment and observe your body reactions. See if and how these change during periods of stress and with changing disease problems. It is also good sometimes to change the composition of added ingredients.

If you feel healthy and well, 1 to 3 g of daily vitamin C and MSM may suit you. For an underlying chronic health problem you may take 3 to 5 g of each, and during an acute infection or as cancer therapy you may gradually and temporarily increase this up to 10 g. A level tsp of vitamin C or MSM is about 3 g while a rounded tsp corresponds to 5 g.

Always start with a low dose and gradually build up to an optimal amount that feels good and right to you. Reduce or stop this treatment if a strong inflammation develops and adopt instead a fasting period, see **Managing the Immune System**.

Oxidising Vitamin C

Oxidised vitamin C, not AA, is the form that kills pathogenic microbes, but the main reason for increasing the ratio of DHA to AA is the much better intestinal absorption of DHA.

It is not necessary to oxidise all of the vitamin C, but a substantial part of it for better absorption. Taking 1 g or more of AA at once may reduce the absorption, and in higher amounts causes diarrhoea. This can be much improved by spacing the intake out or by taking part of it as DHA. However, during an acute infection large amounts of AA can usually be taken without a problem.

There are several ways to oxidise AA. My preferred way is by adding several drops of sodium chlorite solution, commonly called MMS. I do not know the optimal amount of MMS, so you may just experiment. Try several drops of MMS with each gram of AA. There is no taste or smell problem using MMS in this way, and the oxidation power of MMS will not be lost but just transferred to vitamin C. Instead of MMS you may also add several drops of hydrogen peroxide per gram of AA.

Another way of oxidising AA is with the plant enzyme ascorbic acid oxidase (AAO) or ascorbate oxidase. This enzyme oxidises AA to DHA and is widely distributed in vegetables and fruits, especially those high in vitamin C. AA dominates in vitamin C derived from most plants but some can have up to 50% as DHA. AAO, just like cytochrome oxidase needed for oxidation in the citric acid cycle, is a copper-containing haem (heme), the type of enzyme that gets blocked by pathogenic microbes in our body. To oxidise AA we can use the AAO naturally present in fresh and raw or frozen citrus juices as well as blended or pureed raw vegetables, such as zucchini or cabbage. Heating will make AAO ineffective.

In addition AA also becomes oxidised by air oxygen in a blender, even when no AAO is present. In this case oxidation is much improved by adding a tiny sprinkle of a copper salt, such as copper sulphate. Even without blending, AA is being oxidised when just stirring while adding some copper salt and a few drops of 3% hydrogen peroxide.

Warning: If too much oxidiser is used, especially at a pH higher than 4, DHA may deteriorate and not be able to convert back to AA so that it is no longer a form of vitamin C. This can usually be seen in a change of colour as the over-oxidised solution turns dark yellow and increasingly brown. Preferably use vitamin C solutions, oxidised or not, within 24 hours and refrigerate in hot conditions or overnight to minimise loss of vitamin C activity.

Lemon Juice

Fresh or unfrozen lemon juice is the main ingredient of this oxidation mix. Use juice that still contains much of the lemon pulp. A medium quantity would be about 50 ml per day. You may start with 20 ml once a day, best before breakfast, and go up to 30 ml before most meals or even 20 ml 5 times daily before and between meals. Sip it slowly spaced out over ten to twenty minutes while doing other things. The more difficult the situation, the better it is to divide the drink into 3 or even 5 portions to keep the citric acid cycle ticking over. It may be best to have the highest fluid intake in the morning and the lowest before dinner.

Preferably oxidise the AA before mixing it with lemon juice: In a jug with a glassful or two of water add a level teaspoon or more of ascorbic acid or sodium ascorbate or mixed ascorbates or a mixture of these to provide about 3-5 g of vitamin C. Mix the solution but not all of it may dissolve at this stage. While stirring add 5 to 10 drops or more of MMS or 3% hydrogen peroxide.

Now you may mix the oxidised AA with diluted lemon juice, add other ingredients, such as a teaspoon of MSM, and some honey or glycerine as a sweetener. This is partly for the taste buds, but also to provide some starter energy for the citric acid cycle. If you have no blood sugar problems you may use a tsp of honey, otherwise add a tsp of glycerine. Glycerine does not require insulin, and in small amounts does not raise the blood glucose level but provides the same energy as honey. To reduce the acidity of the solution to an acceptable taste level, very slowly, while stirring, keep adding sodium bicarbonate. Finally add more water, depending on how much you want to drink during the day. A fair amount for the whole day would be about 1 litre (2 pints US).

If you need to go to work the next morning, pre-mix the oxidant drink in the afternoon or evening but do not add the bicarbonate and only part of the water, refrigerate. Add bicarbonate and more water the next morning.

Note: During the lemon season you may freeze sufficient lemon juice to carry you over to the next season.

Additional Options

I highly recommend using good-quality energised water. This may be spring or bore water, but, if it is very high in calcium, then this should either be reduced or magnesium added. If one uses typical municipal water then it is best to either distil it or use reverse osmosis, and afterwards add again good minerals such as sea mineral concentrate or colloidal minerals. Another good option is using rain water with added minerals. Buying commercial water in plastic bottles is not really good; but if you do, then get distilled water and re-mineralise it. After adding minerals, energise the water by exposure to the sun, crystals, magnets, pyramids, Brown’s gas or similar devices. Also fresh fruit or vegetable juices may be added to the lemon drink. Minerals keep bioenergy in the water. For recolouring hair frequently apply the vitamin C solution without lemon juice to the hair and scalp. If the hair has been white for a long time the enzymes in the hair bulbs may have died and it may no longer work. Also frequently rub your skin with a partly neutralised solution of oxidised vitamin C and MSM and possibly some fresh juices.

Further important additions are taurine, zinc, P5P and vitamin B3. These are generally deficient with a defective oxygen metabolism but may also be added to a meal instead. P5P is the activated form of vitamin B6 and needed for building and using proteins, including enzymes. You may also add borax or take it separately for Candida control, see **Pyroluria and Candida** for further information.

Taurine is a sulphur amino acid produced in the body by oxidising cysteine. It is needed for many important processes, such as water distribution, bile production, liver detoxification, muscle action – a healthy heart has the highest amount of taurine of any muscle or organ! (https://spingola.com/Taurine.html).

Alcohol is especially dangerous for individuals with oxygen deficiency. In the liver alcohol is oxidised to acetaldehyde which then causes most of the alcohol intoxication problems, strongly affecting the brain. Taurine activates the enzyme Aldehyde Dehydrogenase which then oxidises acetaldehyde to beneficial vinegar.

With heart failure, gram amounts of taurine have been shown to significantly improve exercise ability (4) while all kinds of arrhythmias, including atrial fibrillation, could be normalised with 10 to 20 g of taurine (5). This really shows that most heart disease is caused by defective oxidation. With a good oxidative metabolism we produce enough taurine by oxidising methionine to cysteine, and cysteine to taurine, so that no added taurine is needed to keep the heart healthy. All this shows that heart disease, just like cancer and other diseases, can be avoided or overcome with sufficient biologically available oxygen.

Outlook

Regenerating the oxygen metabolism is a main step in healing our body, but on its own it is not enough to achieve and maintain good health. Other important additional steps are a healthy fresh food diet, control of Candida, Pyroluria and Leaky Gut Syndrome, detoxifying as with periodic raw-food fasting, getting plenty of bioenergy (life force energy), sufficient physical activity, and using your imagination and expectations to tell your body what to manifest.

IMPORTANT: Use these Biological Oxygen Therapies together with the further details provided in **Read This First**. Always use the current versions of these articles.

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